

Translation

PATENT COOPERATION TREATY

PCT/EP2003/008090



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0000053882	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/008090	International filing date (<i>day/month/year</i>) 24 July 2003 (24.07.2003)	Priority date (<i>day/month/year</i>) 28 August 2002 (28.08.2002)
International Patent Classification (IPC) or national classification and IPC C08G 18/48, 18/08		
Applicant BASF AKTIENGESELLSCHAFT		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>8</u> sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of <u>3</u> sheets.
3. This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input checked="" type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 25 November 2003 (25.11.2003)	Date of completion of this report 13 April 2004 (13.04.2004)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/008090

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-19, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages 1-12, filed with the letter of 06 February 2004 (06.02.2004)
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/008090

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 11

because:

☐ the said international application, or the said claims Nos. _____
relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 11
are so unclear that no meaningful opinion could be formed (*specify*):

See the supplemental sheet

☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos. _____

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/008090

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

See the supplemental sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
- ☒ the parts relating to claims Nos. 1-10, 12

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/08090

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: III.1

**Non-establishment of opinion with regard to novelty,
inventive step and industrial applicability**

1. The feature "flexible polyurethane foams having reduced cracking", used in claim 11, is unclear (PCT Article 6). The statement does not incorporate an absolute feature but is relative, with no reference value being defined. A comparison with the prior art is therefore not possible.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV.3

Lack of unity of the invention

1. The present invention relates to
 - i. a method for the production of low-emission flexible polyurethane foams (claims 1 to 7),
 - ii. low-emission flexible polyurethane foams (claim 8),
 - iii. the use of the flexible polyurethane foams (claims 9 to 10),
 - iv. the use of polyether alcohols for the production of flexible polyurethane foams having reduced cracking (claim 11), and
 - v. the use of specific polyether alcohols for the production of flexible polyurethane foams having reduced odour and a reduced fogging value (claim 12).
2. The different inventions/groups of inventions are:
 - 1) claims 1 to 10 and 12
 - 2) claim 11.
3. These inventions/groups are not so linked as to form a single general inventive concept (PCT Rule 13.1). The reasons are as follows:

The subject matter of claims 1 to 10 and 12 is defined by a limited group of renewable raw materials. The subject matter of claims 9 to 10 is linked with the subject matter of claims 1 to 8, since flexible polyurethane foams as defined in

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/08090

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV.3

claim 8 are used. The subject matter of claim 12 is linked with the subject matter of claims 1 to 8, since polyether alcohols identical to those defined in claim 1 are used.

The subject matter of claim 11 is not limited with respect to the renewable raw materials. A link with claims 1 to 10 and 12 can therefore be identified only in the area of overlap (the limited group of renewable raw materials). It should also be noted that the feature "flexible polyurethane foams having reduced cracking" is unclear (PCT Article 6), since the statement does not incorporate an absolute feature but is relative, with no reference value being defined.

The general inventive concept linking the above-mentioned inventions/groups of inventions is therefore the presence of "polyether alcohols produced by the addition of alkylene oxides to compounds of renewable raw materials using DMC catalysts".

This concept is not novel (see D1 to D4).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/08090

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-10, 12	YES
	Claims		NO
Inventive step (IS)	Claims	1-10, 12	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10, 12	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

- D1: WO 00 44813 A (GROSCH GEORG HEINRICH; BASF AG (DE); HARRE KATHRIN (DE); LARBIG HA) 3 August 2000 (2000-08-03) cited in the application
- D2: WO 02 22702 A (SONNEY JEAN MARIE L; CASATI FRANCOIS M (FR); DOW CHEMICAL CO (US)) 21 March 2002 (2002-03-21)
- D3: EP-A-0 759 450 (ARCO CHEM TECH) 26 February 1997 (1997-02-26)
- D4: DE 198 40 846 A (BASF AG) 9 March 2000 (2000-03-09)

1. D1 relates to

- i. a method for the production of polyether polyols using multimetal cyanide compounds as catalysts (claims 1 to 4; examples 2 to 11),
- ii. polyether polyols (claim 5; examples 2 to 11),
- iii. a method for the production of polyurethanes (claim 6; page 5, lines 28 to 31), and
- iv. polyurethanes (claim 7; page 5, lines 28 to 31).

On page 1, lines 16 to 43, the polyurethanes are

characterised further as flexible polyurethane foams.

In the description of the prior art (page 3, lines 36 to 42), castor oil is mentioned as a possible batch starter for flexible foam polyetherols. However, it is also stated that castor oil "is not available in sufficient quantities or at consistent quality". It should also be noted that, in addition to multimetal cyanide compounds, caesium hydroxide is explicitly mentioned as a catalyst (page 2, lines 6 to 12). D1 provides no examples to prove or substantiate the general statement that castor oil "is theoretically suitable" for use as a batch starter (see D1: page 3, lines 40 to 41).

Consequently, in order to arrive at the subject matter of the present application, within the description of the prior art in D1 a multiple choice has to be made, namely, castor oil as starter and a multimetal cyanide compound as catalyst. The claimed product, the method and the use are therefore all delimited over D1.

The subject matter of claims 1 to 10 and 12 therefore appears to be novel over D1 (PCT Article 33(2)).

2. D2 relates to a method for the production of low-emission flexible polyurethane foams suitable for the production of mattresses or for use in the automotive industry (examples 1 to 6; claims 1 to 47; page 1, lines 27 to 33; page 7, lines 20 to 23). D2 discloses (page 10, line 8) sorbitol and sucrose

(renewable raw materials) and DMC catalysts (page 10, lines 36 to 37).

D2 does not anticipate the subject matter of the application (claims 1 to 10 and 12), since a multiple choice has to be made in order to arrive at the subject matter of the present application.

3. D3 discloses NCO prepolymers made from polyether alcohols using DMC catalysts (claims 1 to 22; examples 5 to 6). Page 3, lines 43 to 44, discloses various renewable raw materials (e.g. sorbitol) as batch starters.

D3 does not disclose any flexible polyurethane foams and does not therefore appear to anticipate the subject matter of the application (claims 1 to 10 and 12).

4. D4 discloses polyether polyols produced by the addition of alkylene oxides to compounds of renewable raw materials using DMC catalysts. D4 therefore seems to be less relevant.

5. The problem addressed by the present application is that of providing polyurethanes distinguished by improved properties, a method for the production thereof and a use (see page 2, lines 18 to 22, of the application).

The examples demonstrate improved VOC and FOG values and improved wet compression set (see table 1).

6. An inventive step can be acknowledged for claims 1 to 10 and 12 (PCT Article 33(3)).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/08090

7. The present application appears to satisfy the criterion of PCT Article 33(4), because the subject matter of claims 1 to 10 and 12 is industrially applicable.